



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/856,108	02/27/2002	Wolfgang Dultz	2345/155	3698
26646	7590	10/15/2003	EXAMINER	
KENYON & KENYON ONE BROADWAY NEW YORK, NY 10004			PARKER, KENNETH	
			ART UNIT	PAPER NUMBER
			2871	

DATE MAILED: 10/15/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/856,108

Applicant(s)

DULTZ ET AL.

Examiner

Kenneth A Parker

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 16-30 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 16-30 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 16-30 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 1 and 26, the last paragraph "in a path of rays of a light beam to be modulated; and directions of the fast optical axes and slow optical axes, respectively, of the at least two liquid crystal layers are rotated relative to one another so that a polarization upstream of the light beam is the same as a polarization downstream of the light beam" not understood, as the polarization of light that is sent through the device in two directions was not specified (one can send anything through in any direction). It has been assumed to mean that the two layers have optical axes are orthogonal to each other, and examined according to this interpretation.

In claim 23, the mixtures FLC- are indefinite as it is unclear what materials are specified. It appears as though they are the names of materials produced by some company, but that company is not specified. Additionally, specifying a material by a name given by a company is indefinite, as the company giving it the name can change the material under the name. For examining purposes, it is presumed that the material is the materials of claims 24-25.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 16, 20-22 , 26, 29-30 are rejected under 35 U.S.C. 102(b) as being anticipate by Walba 5168361.

The device of Walba shows the limitations included in claims 16 and 31: An electrically drivable light modulator comprising:

at least two liquid crystal layers for enclosing between at least two transparent plates having a surface anisotropy for orienting molecules of the at least two liquid crystal layers and having electrodes for generating an electric field in the at least two liquid crystal layers; wherein:

the at least two liquid crystal layers include helical, smectic ferroelectric liquid crystals, whose fast optical axes and slow optical axes, respectively, are disposed in parallel with a respective one of the at least two liquid crystal layers, and whose average optical anisotropy is influenceable by an action of the electric field (any liquid crystal is influencable by an electric field- this is inherent);

the at least two liquid crystal layers are situated one behind another for being in a path of rays of a light beam to be modulated; and directions of the fast optical axes and slow optical axes, respectively, of the at least two liquid crystal layers are rotated relative to one another so that a polarization upstream of the light beam is

the same as a polarization downstream of the light beam. As discussed in the rejection under 112, this is not understood but assumed to mean that the two layers have optical axis are orthogonal to each other (they are at 90 degrees- see figure 2).

Note that many claims include intended us limitations:

Regarding claim 20, the reference indicates that cells are the same, and the language "able to receive synchronously a same control voltage", is intended use, and therefore met (there is no reason the devices can't be given synchronously the same voltages

Regarding claim 21, the language "voltages of the electrodes is adjustable for compensating for a change in the polarization of a light beam passing through the at least two liquid crystal layers" is met as the intended use "is adjustable" limitation can be done.

Regarding 22 the language "control voltages for each of the at least two liquid crystal layers is adjustable for compensating for a manufacturing tolerance" is also intended use, as the claim only requires the condition can be met by the devices, not that they have control devices which meet the condition.

Regarding 26, the limitations beyond 16 are the preamble, "An adaptive optical device comprising" and "a field of light modulators being configured in a raster-type array and being for situating in a path of rays, each of the light modulators being drivable for compensating for unsharpness occurring on a point-by-point basis of an image to be processed". The reference indicates matrix driving, which gives an array of modulators (each pixel in the array is a modulator), with the other limitations (such as

drivable such that) being purely intended use, and therefore met as the cells certainly can be driven for this purpose.

Regarding 29, the language "optical observational device is feedable in parallel to an image-analysis device for determining a point-for-point unsharpness in the image, and the adaptive optical device is drivable by the image-analysis device for compensating for the point-for-point unsharpness" is again intended use which can be performed by the device, and therefore the language is met.

Regarding 30, the language "camera is feedable to an image-analysis device for determining a point-for-point unsharpness in the image, and the adaptive optical device is drivable by the image-analysis device for compensating for the point-for-point unsharpness." is again intended use which can be performed by the device, and therefore the language is met.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 18-19 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over by Walba 5168361.

Claims 18 and 19 add the substrates being transparent and the electrodes being transparent. Both were conventionally made transparent because they needed to be able to shine light through them. Therefore one of ordinary skill would have known to make the substrates transparent so they could perform their required function without blocking light as was conventionally if not always done. It was notoriously well known to have stacked cells share a common substrate for the benefit of reducing the thickness and weight. Therefore one of ordinary skill would have known to use a shared substrate for the benefit of reducing the thickness and weight.

Claims 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over by Walba 5168361 as applied above, and further in view of Kelly 5326498.

The Walba reference discloses chiral C and A liquid crystal phases, but lacks the claimed chemical composition (all three claims taken to have the same broad composition in accordance with the interpretation given under 112 above)"

liquid crystal layers include 60 % by weight of phenyl pyrimidine and 40 % by weight of an having a chiral doping on a basis of a disubstituted ether of bis-terphenyl dicarboxylic acid. Kelly discloses such a composition (but with a different ratio- 27 to 73). Kelly indicates that the mixtures have "good stability" and "short response times" (abstract). Therefore it would have been obvious, to one of ordinary skill, to use the mixtures of Kelly for the benefit of good stability and short response times. The

selection of the exact ratio was well known for optimizing the pitch for the intended operation. Therefore it would have been obvious to one of ordinary skill to select the ratio as claimed, only slightly different than that disclosed by the reference, in order to optimize the pitch for the intended operation.

Claims 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Giles et al 5978053 in view of Walba 5168361.

The device of Giles has a camera et al lacks the details of the driving cells including their double structure. The Walba reference has the structure, indicating the benefit of "fast response, high contrast and grey scale" in column 4, lines 20-26, and even indicating optical computing (col. 1) in the background of the invention.

The language "" for picking up and feeding an image to an image-analysis device for determining a point-for-point unsharpness in the image, and the adaptive optical device is drivable by the image-analysis device for compensating for the point-for-point unsharpness" is again the intended use, which is can be performed and therefore is met by the reference.

Allowable Subject Matter

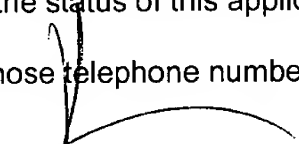
Claim 17 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The reason for the indication of allowable subject matter is the devices being perpendicular at all times: "an orientation of the first slow optical axis and the first fast optical axis of the first layer and of the second slow optical axis and the second fast optical axis of the second layer in relation to one another is retained at all times when a control voltage is applied and varied".

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenneth A Parker whose telephone number is 703-305-6202. The examiner can normally be reached on 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H. Kim can be reached on 305-3492. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 308-0956.



Kenneth A Parker
Primary Examiner
Art Unit 2871
